

PATENT ABSTRACTS OF JAPAN

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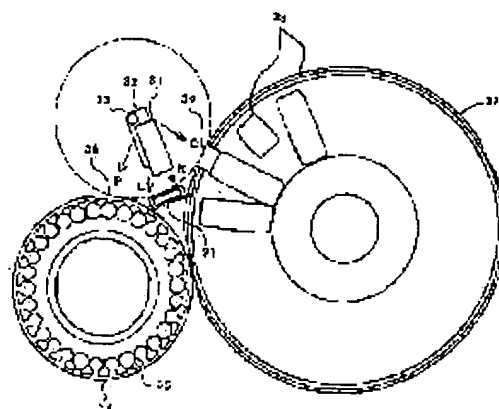
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(54) AUTOMATIC ANALYZER

(57)Abstract:

PURPOSE: To provide an automatic analyzer whose registration operation is simple and whose registration is performed by simple work even when detail information about a calibrator and a control is changed every lot for the automatic analyzer which is inconvenient to register the detail information of the calibrator and the control.

CONSTITUTION: A reagent table 37 for mounting a plurality of reagent bottles 38, a sample table 34 for mounting a calibrator and a control, and a bar code reader 31 for reading a two-dimensional bar code of the reagent bottles 38 and a one-dimensional bar code of the calibrator and the control are equipped. The information thereof is stored in addition to reagent information in the two-dimensional bar code of the bottles 38.



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CLAIMS

[Claim(s)]

[Claim 1] The automatic analyzer characterized by to have the bar code reader which reads each bar code of the identification code of the calibrator held into it, or a control sample, the container to which the lot number was given as a 1-dimensional bar code, the reagent bottle to which the information and the reagent information about a calibrator or a control sample were given as a two-dimensional bar code, and the above-mentioned container and the above-mentioned reagent bottle, and the storage section which match and register the bar code information which read in the above-mentioned container and the above-mentioned reagent bottle.

[Claim 2] The identification code of the calibrator held into it, or a control sample, and the container to which the lot number was given as a 1-dimensional bar code, The container concrete supply system which has arranged two or more above-mentioned containers, and the reagent bottle to which the information and reagent information about the calibrator or a control sample were given as a two-dimensional bar code, The detailed information about the reagent bottle concrete supply system which has arranged two or more above-mentioned reagent bottles, and the calibrator or control sample corresponding to a reagent of two or more lots as a two-dimensional bar code The automatic analyzer characterized by having had the card holder in which the attached bar code card is inserted, and the bar code reader of the rotating type into which the reading direction is changed, and having arranged mostly the bar code side of the above-mentioned container, the above-mentioned reagent bottle, and the above-mentioned card on the same periphery.

[Claim 3] The automatic analyzer characterized by having the display which displays the message which stimulates inserting the above-mentioned bar code card when it has the storage section which registers the information on each bar code in an analysis apparatus according to claim 2 and the detailed information of the calibrator or a control sample has not been registered into the above-mentioned storage section.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the automatic analyzer which analyzes the component in a sample.

[0002]

[Description of the Prior Art] As for the information which must be processed in process in which the component in a sample is analyzed, with an automatic analyzer, distinction of a sample, an analysis item, the component of a reagent, the term of validity, reaction time, the calibrator (sample for calibration-curve creation), the information on control (sample for quality control), etc. are various.

[0003] In order to process those information, the 1-dimensional bar code has been used more often in recent years. JP,63-61165,A reads the bar code which is one dimension to which the information about the number of an analysis pattern, the term of validity, or each ID is dedicated, and shows that it analyzes by the option based on the read information by calling and processing the database of the detailed information beforehand registered into the storage of equipment.

[0004] By such method using the 1-dimensional bar code with little amount of information, ID information, such as a sample and a reagent, and those detailed information are not simultaneously inputted into equipment. In case a new reagent is used, information must be inputted beforehand, and you have to divide and register information. This complicates operation for an operator. Moreover, when dividing and registering information, the structure of equipment and development of software, such as increasing the equipment which manages the turn and time to input or inputs information, are made complicated. the method of carrying out package management of a sample, a reagent, etc. and each information by the high-density mass two-dimensional bar code system is advocated to such a demand (development of valley Shigeki et al. and a two-dimensional bar code system and an information management Japan clinical test automatic chemistry meeting meeting magazine -- the 2-dimensional bar code new medical 1994 February issue expected in Vol.18 No.2 1993 and a valley Shigeki medical field)

[0005] On the other hand, JP,6-12423,A arranges a bar code in on space, records detailed information, and shows how to make it read.

[0006]

[Problem(s) to be Solved by the Invention] If high analysis of precision comes to be called for, each different detailed information is required for every lot of a calibrator or a control sample. In this case, the amount of information which must register those information into whenever [the] and treats it so much increases further.

[0007] the former and these detailed information -- registering -- for -- the care force from a keyboard -- it was carrying out It is easy to come also out of a mistake, and work of keyboard entry is complicated.

[0008] Here, a calibrator points out the sample for calibration-curve creation, and a control sample points out the sample for quality control (control is called hereafter).

[0009] The purpose of this invention offers the easy automatic analyzer of registration operation to the automatic analyzer it was inconvenient to have registered a calibrator and the detailed information on control. Furthermore, highly precise analysis comes to be called for, and when a calibrator and the detailed information on control change for every lot, the automatic analyzer with which registration can

be managed with easy work is offered.

[0010]

[Means for Solving the Problem] this invention is characterized by to have the bar code reader which reads each bar code of the identification code of the calibrator held into it, or a control sample, the container to which the lot number was given as a 1-dimensional bar code, the reagent bottle to which the information and the reagent information about a calibrator or a control sample were given as a two-dimensional bar code, and the container and a reagent bottle, and the storage section which matches and registers the bar code information read in the above-mentioned container and the above-mentioned reagent bottle.

[0011] this invention Moreover, the identification code of the calibrator held into it, or a control sample and the container to which the lot number was given as a 1-dimensional bar code, The container concrete supply system which has arranged two or more above-mentioned containers, and the reagent bottle to which the information and reagent information about a calibrator or a control sample were given as a two-dimensional bar code, The detailed information about the reagent bottle concrete supply system which has arranged two or more above-mentioned reagent bottles, and the calibrator or control sample corresponding to a reagent of two or more lots as a two-dimensional bar code It has the card holder in which the attached bar code card is inserted, and the bar code reader of the rotating type into which the reading direction is changed, and is characterized by having arranged mostly the bar code side of the above-mentioned container, the above-mentioned reagent bottle, and the above-mentioned card on the same periphery. In this case, when it has the storage section which registers the information on each bar code and the detailed information of a calibrator or a control sample has not been registered into the above-mentioned storage section, it has the display which displays the message which stimulates inserting a bar code card.

[0012]

[Function] In this invention, it can register without special work with equipment by offering the calibrator and the information on control with the two-dimensional bar code label on which it was stuck at the reagent bottle. Furthermore, since information is registered even when the calibrator and the lot of control change by dedicating two or more set Mino calibrator and the information on control to the two-dimensional bar code of a reagent bottle, it is not necessary to do new registration work. Furthermore, by using a bar code card, when manufacture of the calibrator and control is slower than manufacture of a reagent, information offer can be performed easily. Moreover, it is not necessary to newly increase the bar code reader which reads a bar code card by making a bar code reader into working. Moreover, both methods of making move the method and bar code to which a bar code reader is moved, and reading a two-dimensional bar code are realizable by considering as working.

[0013]

[Example] Hereafter, the concrete example of this invention is explained with reference to drawing 1 - drawing 4 .

[0014] The lot number of the code which shows that it is a reagent to the two-dimensional bar code label concerning this invention stuck on the bottle of a reagent, and a reagent, each number of a reagent bottle, detailed information, the calibrator, and the detailed information on control are dedicated. The calibrator and the information on control are dedicated about the lot newest in the stage where the reagent was manufactured, and the lot of a before [three]. For example, the content as shown in Table 1 is dedicated to the bar code label of the reagent lot 5.

[0015]

[Table 1]

表 1
試薬ロット5のバーコードラベル

バーコード識別	試薬
ロット番号	5
ボトル番号	7
試薬の詳細情報	試薬1の詳細情報
キャリブレータの詳細情報	試薬ロット5を使ったときのキャリブレータのロット3～6の詳細情報
コントロールの詳細情報	試薬ロット5を使ったときのコントロールロット4～7の詳細情報

[0016] Drawing 1 is the schematic diagram of the bar code card concerning this invention. The bar code card 11 has the composition that the bar code label 13 was stuck on pasteboard or the card substrate 12 made from plastics. Or the bar code is printed by the substrate of pasteboard or the card 11 made from plastics itself. In order to prevent incorrect insertion of a card, you may make it stick printing or a bar code label on both sides of a card for a bar code. The calibrator to the reagent of the lot newest in the stage where the calibrator or the lot number of control and the calibrator, or control was manufactured, and the lot of a before [three], or the detailed information on control is dedicated to the bar code of the bar code card 11. For example, the content as shown in Table 2 is dedicated to the bar code label of the calibrator lot 5. Moreover, the content as shown in Table 3 is dedicated to the bar code label of the calibrator lot 6.

[0017]

[Table 2]

表 2
キャリブレータロット5のバーコードカード

バーコード識別	キャリブレータ
ロット番号	5
ボトル番号	8
試薬の詳細情報	キャリブレータロット5の詳細情報
詳細情報	試薬ロット2～5を使ったときのキャリブレータのそれぞれの詳細情報

[0018]

[Table 3]

表 3
キャリブレータロット6のバーコードカード

バーコード識別	キャリブレータ
ロット番号	6
ボトル番号	10
試薬の詳細情報	キャリブレータロット6の詳細情報
詳細情報	試薬ロット3～6を使ったときのキャリブレータのそれぞれの詳細情報

[0019] In this example, when the reagent lot 5 is manufactured, the calibrator shall be manufactured even to the lot 5. And after the reagent lot 5 was manufactured, the calibrator lot 6 should be manufactured.

[0020] Drawing 2 is drawing of the bar code card holder for reading the bar code card 11. The bar code card holder 21 inserts a bar code card, and has structure which can be read from an aperture 23 from the insertion mouth 22.

[0021] Next, the composition of the automatic analyzer concerning this invention is explained. Drawing

3 is the plan of the automatic analyzer which used this invention. It is fixed to the rotation base 32 and a bar code reader 31 can be rotated with a stepping motor centering on a shaft 33. Equipment is equipped with the keyboard which can input various commands and information, and the display which displays various messages and information. You may equip the input unit which used the touch panel instead of the keyboard. Moreover, the system software of equipment is supplied and the floppy disk drive handling the floppy disk which memorizes various information is equipped.

[0022] The sample container 35 is located in a line with the sample table 34 on the periphery. A sample, the calibrator, and control are contained in the container 35. A test tube or a sample cup, a minute amount cup, the calibrator, and the control of a container 35 are the containers of exclusive use. The sensor which can discriminate the position in the sample tables 34, such as a sample and calibrator, is prepared for the sample table 34.

[0023] The 1-dimensional bar code label is stuck on the calibrator or the container of control, the code which discriminates that they are the calibrator or control, each lot number, etc. are dedicated to this 1-dimensional bar code, and each detailed information is not contained. Moreover, the information on the code which discriminates that it is a sample and a sample number, or others is contained in the test tube of a sample. And the container 35 with which the bar code was stuck turned the label to the periphery top outside, and is located in a line.

[0024] Moreover, the sample table 34 can be rotated now centering on the center of the sample table 34 with a stepping motor. It fixes towards Direction P and a bar code reader 31 can read the bar code of a sample or the calibrator one after another from an aperture 36.

[0025] The bottle 38 containing the reagent with which the two-dimensional bar code label was stuck turned the label to the periphery top outside, and is located in a line with the reagent table 37. As for the bottle 38 of a reagent, a different thing of capacity, the container of a diluent, etc. can be intermingled. The sensor which can discriminate the position in the reagent tables 37, such as a reagent and a diluent, is prepared for the reagent table 37. Moreover, the reagent table 37 can be rotated now centering on the center of the reagent table 37 with a stepping motor. It fixes towards Direction Q and a bar code reader 31 can read the bar code of a reagent or a diluent one after another from an aperture 39. Moreover, a bar code reader can read a two-dimensional bar code, keeping a position constant because the reagent table 37 rotates.

[0026] In the bar code card holder 21 arranged between a sample table and a reagent table, the bar code card 11 is placed, and a two-dimensional bar code is read, rotating the reading direction of a bar code reader 31 with L->R or R->L. The bar code side of a container 35, the bar code card 11, and a bottle 38 is on the same periphery mostly.

[0027] Thus, by enabling a rotation of a bar code reader 31, it is one bar code reader and it is possible to read three bar codes, such as a sample, a reagent, and the bar code card 11.

[0028] Moreover, in this mechanism, both methods of making move the method and bar code to which a bar code reader 31 is moved, and reading a bar code are realizable.

[0029] In the above-mentioned example, although it is the mechanism which the sample table 34 and the reagent table 37 are circular, and rotate, even if it is the mechanism which combined not only a rotation like this example but a parallel displacement, a parallel displacement, and a rotation, it is applicable. As an example, the case where it is the conveyance line of a sample instead of the sample table is shown in drawing 4. With this composition, it has the composition of a bar code reader 51 rotating and reading the 1-dimensional bar code label of the containers 56, such as a sample and calibrator, put in order by the two-dimensional bar code label of the reagent bottle 57 in the reagent table 52, the bar code card 11 inserted in the bar code electrode holder 53, and the rack 55 which moves in the conveyance line 54 top, respectively.

[0030] Next, the flow of processing is explained with reference to drawing 3 taking the case of the calibrator. Before analysis, first, equipment makes a bar code reader 31 turn to in the reagent bar code reading direction Q, and reads the bar code of the reagent lot 5 of the content of Table 1 about all the reagents of the reagent table 37, or diluents. Here, the detailed information on four lots of the calibrator lots 3-6 is registered into a floppy disk. Next, a bar code reader 31 is suitable in the sample bar code reading direction P. All of the sample and calibrator of the sample table 34, or the bar code of control are read also here. Here, when that by which neither the calibrator nor the detailed information of control is

registered into a floppy disk is discovered, it is displayed on a display that a message inserts the bar code card corresponding to this lot in the bar code card holder 21 (for example, when the calibrator lot 6 is discovered in the sample table 34, a message is sent so that the calibrator lot 6 of the content of Table 3 may carry out bar code card insertion.). And a bar code reader 31 turns to the reading position of the bar code card 11. If an operator inserts the bar code card 11 corresponding to the lot concerned and publishes the command of the calibrator or control information registration from a keyboard, a bar code reader 31 will go a bar code to reading. If reading is performed normally, the calibrator or the information on control will be registered. A sensor is attached to a card holder 21, insertion of the bar code card 11 is detected, and it may be made to publish a command instead of publishing a command automatically.

[0031] When it is the case where the wrong bar code card 11 is inserted at that time, and the bar code (when the bar code card of the calibrator lot 5 of the content of Table 2 has been inserted in the above-mentioned example) which cannot be read, a computer sends the message of warning on a display. Moreover, when neither the calibrator nor control is registered normally, it prevents from performing the calibration-curve creation and the quality control which used the calibrator of the lot, and control of the lot.

[0032] Although the automatic analyzer concerning this invention consists of the above composition, the operation is explained below. By this invention, by dedicating the calibrator and 4 sets of information on control into the two-dimensional bar code of the reagent bottle 38, when the calibrator and the lot of control change, it can respond. The information for four lots considers the calibrator and the term of validity of control, and is sufficient amount of information. Furthermore, by using the bar code card 11, when manufacture of the calibrator and control is slower than manufacture of a reagent, the bar code card 11 can be inserted in the bar code card holder 21, and information offer can be easily performed only by the work made to read into equipment. For example, while using the reagent lot 5 of the above-mentioned example, when it is going to use the calibrator lot 6 manufactured after the reagent lot 5 was manufactured, registration work can be performed only by making the bar code card of the calibrator lot 6 of the content of Table 3 read. Moreover, it is not necessary to newly increase the bar code reader which reads the bar code card 11 by making a bar code reader 31 into working. Moreover, both methods of making move the method and bar code to which a bar code reader 31 is moved, and reading a two-dimensional bar code are realizable by considering as working.

[0033]

[Effect of the Invention] By this invention, inputting a calibrator and the detailed information on control can offer the easy automatic analyzer of registration operation to the inconvenient automatic analyzer. Furthermore, highly precise analysis comes to be called for, and when a calibrator and the detailed information on control change for every lot, the automatic analyzer with which registration can be managed with easy work can be offered.

[0034] Moreover, in these information offers, the input method is diversified and equipment is not complicated.

[0035] According to this invention, the information about the reagent used for the reaction of an analysis item and the information on the calibrator relevant to the reagent and/or a control sample can be registered into the storage section, without inputting by the help. Moreover, since reading of both the bar code of a container and the bar code given to the card was made possible, the information on the control sample relevant to the reagent to which the bar code was given, or the information on a calibrator is read in a card, and those information can be associated and registered. Furthermore, each bar code information can be read by one set of a bar code reader by making a bar code reader into a rotating type, and devising arrangement of a container, a bottle, and a card.

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TECHNICAL FIELD

[Industrial Application] This invention relates to the automatic analyzer which analyzes the component in a sample.

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PRIOR ART

[Description of the Prior Art] As for the information which must be processed in process in which the component in a sample is analyzed, with an automatic analyzer, distinction of a sample, an analysis item, the component of a reagent, the term of validity, reaction time, a calibrator (sample for calibration-curve creation), the information on control (sample for quality control), etc. are various.

[0003] In order to process those information, the 1-dimensional bar code has been used more often in recent years. JP,63-61165,A reads the bar code which is one dimension to which the information about the number of an analysis pattern, the term of validity, or each ID is dedicated, and shows that it analyzes by the option based on the read information by calling and processing the database of the detailed information beforehand registered into the storage of equipment.

[0004] By such method using the 1-dimensional bar code with little amount of information, ID information, such as a sample and a reagent, and those detailed information are not simultaneously inputted into equipment. In case a new reagent is used, information must be inputted beforehand, and you have to divide and register information. This complicates operation for an operator. Moreover, when dividing and registering information, the structure of equipment and development of software, such as increasing the equipment which manages the turn and time to input or inputs information, are made complicated. the method of carrying out package management of a sample, a reagent, etc. and each information by the high-density mass two-dimensional bar code system is advocated to such a demand (development of valley Shigeki et al. and a two-dimensional bar code system and an information management Japan clinical test automatic chemistry meeting meeting magazine -- the 2-dimensional bar code new medical 1994 February issue expected in Vol.18 No.2 1993 and a valley Shigeki medical field)

[0005] On the other hand, JP,6-12423,A arranges a bar code in on space, records detailed information, and shows how to make it read.

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EFFECT OF THE INVENTION

[Effect of the Invention] By this invention, inputting a calibrator and the detailed information on control can offer the easy automatic analyzer of registration operation to the inconvenient automatic analyzer. Furthermore, highly precise analysis comes to be called for, and when a calibrator and the detailed information on control change for every lot, the automatic analyzer with which registration can be managed with easy work can be offered.

[0034] Moreover, in these information offers, the input method is diversified and equipment is not complicated.

[0035] According to this invention, the information about the reagent used for the reaction of an analysis item and the information on the calibrator relevant to the reagent and/or a control sample can be registered into the storage section, without inputting by the help. Moreover, since reading of both the bar code of a container and the bar code given to the card was made possible, the information on the control sample relevant to the reagent to which the bar code was given, or the information on a calibrator is read in a card, and those information can be associated and registered. Furthermore, each bar code information can be read by one set of a bar code reader by making a bar code reader into a rotating type, and devising arrangement of a container, a bottle, and a card.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] If high analysis of precision comes to be called for, each different detailed information is required for every lot of a calibrator or a control sample. In this case, the amount of information which must register those information into whenever [the] and treats it so much increases further.

[0007] the former and these detailed information -- registering -- for -- the care force from a keyboard -- it was carrying out It is easy to come also out of a mistake, and work of keyboard entry is complicated.

[0008] Here, a calibrator points out the sample for calibration-curve creation, and a control sample points out the sample for quality control (control is called hereafter).

[0009] The purpose of this invention offers the easy automatic analyzer of registration operation to the automatic analyzer it was inconvenient to have registered a calibrator and the detailed information on control. Furthermore, highly precise analysis comes to be called for, and when a calibrator and the detailed information on control change for every lot, the automatic analyzer with which registration can be managed with easy work is offered.

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MEANS

[Means for Solving the Problem] this invention is characterized by to have the bar code reader which reads each bar code of the identification code of the calibrator held into it, or a control sample, the container to which the lot number was given as a 1-dimensional bar code, the reagent bottle to which the information and the reagent information about the calibrator or a control sample were given as a two-dimensional bar code, and the container and a reagent bottle, and the storage section which match and register the bar code information read in the above-mentioned container and the above-mentioned reagent bottle.

[0011] this invention Moreover, the identification code of the calibrator held into it, or a control sample and the container to which the lot number was given as a 1-dimensional bar code, The container concrete supply system which has arranged two or more above-mentioned containers, and the reagent bottle to which the information and reagent information about the calibrator or a control sample were given as a two-dimensional bar code, The detailed information about the reagent bottle concrete supply system which has arranged two or more above-mentioned reagent bottles, and the calibrator or control sample corresponding to a reagent of two or more lots as a two-dimensional bar code It has the card holder in which the attached bar code card is inserted, and the bar code reader of the rotating type into which the reading direction is changed, and is characterized by having arranged mostly the bar code side of the above-mentioned container, the above-mentioned reagent bottle, and the above-mentioned card on the same periphery. In this case, when it has the storage section which registers the information on each bar code and the detailed information of the calibrator or a control sample has not been registered into the above-mentioned storage section, it has the display which displays the message which stimulates inserting a bar code card.

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OPERATION

[Function] In this invention, it can register without special work with equipment by offering a calibrator and the information on control with the two-dimensional bar code label on which it was stuck at the reagent bottle. Furthermore, since information is registered even when a calibrator and the lot of control change by dedicating two or more set Mino calibrator and the information on control to the two-dimensional bar code of a reagent bottle, it is not necessary to do new registration work. Furthermore, by using a bar code card, when manufacture of a calibrator and control is slower than manufacture of a reagent, information offer can be performed easily. Moreover, it is not necessary to newly increase the bar code reader which reads a bar code card by making a bar code reader into working. Moreover, both methods of making move the method and bar code to which a bar code reader is moved, and reading a two-dimensional bar code are realizable by considering as working.

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EXAMPLE

[Example] Hereafter, the concrete example of this invention is explained with reference to drawing 1 - drawing 4 .

[0014] The lot number of the code which shows that it is a reagent to the two-dimensional bar code label concerning this invention stuck on the bottle of a reagent, and a reagent, each number of a reagent bottle, detailed information, the calibrator, and the detailed information on control are dedicated. The calibrator and the information on control are dedicated about the lot newest in the stage where the reagent was manufactured, and the lot of a before [three]. For example, the content as shown in Table 1 is dedicated to the bar code label of the reagent lot 5.

[0015]

[Table 1]

表 1
試薬ロット5のバーコードラベル

バーコード識別	試薬
ロット番号	5
ボトル番号	7
試薬の詳細情報	試薬 1 の詳細情報
キャリブレータの詳細情報	試薬ロット5を使ったときのキャリブレータのロット3～6の詳細情報
コントロールの詳細情報	試薬ロット5を使ったときのコントロールロット4～7の詳細情報

[0016] Drawing 1 is the schematic diagram of the bar code card concerning this invention. The bar code card 11 has the composition that the bar code label 13 was stuck on pasteboard or the card substrate 12 made from plastics. Or the bar code is printed by the substrate of pasteboard or the card 11 made from plastics itself. In order to prevent incorrect insertion of a card, you may make it stick printing or a bar code label on both sides of a card for a bar code. The calibrator to the reagent of the lot newest in the stage where the calibrator or the lot number of control and the calibrator, or control was manufactured, and the lot of a before [three], or the detailed information on control is dedicated to the bar code of the bar code card 11. For example, the content as shown in Table 2 is dedicated to the bar code label of the calibrator lot 5. Moreover, the content as shown in Table 3 is dedicated to the bar code label of the calibrator lot 6.

[0017]

[Table 2]

表 2
キャリブレーションロット5のバーコードカード

バーコード識別	キャリブレーション
ロット番号	5
ボトル番号	8
試薬の詳細情報	キャリブレーションロット5の詳細情報
詳細情報	試薬ロット2～5を使ったときのキャリブレーションのそれぞれの詳細情報

[0018]
[Table 3]

表 3
キャリブレーションロット6のバーコードカード

バーコード識別	キャリブレーション
ロット番号	6
ボトル番号	10
試薬の詳細情報	キャリブレーションロット6の詳細情報
詳細情報	試薬ロット3～6を使ったときのキャリブレーションのそれぞれの詳細情報

[0019] In this example, when the reagent lot 5 is manufactured, the calibrator shall be manufactured even to the lot 5. And after the reagent lot 5 was manufactured, the calibrator lot 6 should be manufactured.

[0020] Drawing 2 is drawing of the bar code card holder for reading the bar code card 11. The bar code card holder 21 inserts a bar code card, and has structure which can be read from an aperture 23 from the insertion mouth 22.

[0021] Next, the composition of the automatic analyzer concerning this invention is explained. Drawing 3 is the plan of the automatic analyzer which used this invention. It is fixed to the rotation base 32 and a bar code reader 31 can be rotated with a stepping motor centering on a shaft 33. Equipment is equipped with the keyboard which can input various commands and information, and the display which displays various messages and information. You may equip the input unit which used the touch panel instead of the keyboard. Moreover, the system software of equipment is supplied and the floppy disk drive handling the floppy disk which memorizes various information is equipped.

[0022] The sample container 35 is located in a line with the sample table 34 on the periphery. A sample, the calibrator, and control are contained in the container 35. A test tube or a sample cup, a minute amount cup, the calibrator, and the control of a container 35 are the containers of exclusive use. The sensor which can discriminate the position in the sample tables 34, such as a sample and calibrator, is prepared for the sample table 34.

[0023] The 1-dimensional bar code label is stuck on the calibrator or the container of control, the code which discriminates that they are the calibrator or control, each lot number, etc. are dedicated to this 1-dimensional bar code, and each detailed information is not contained. Moreover, the information on the code which discriminates that it is a sample and a sample number, or others is contained in the test tube of a sample. And the container 35 with which the bar code was stuck turned the label to the periphery top outside, and is located in a line.

[0024] Moreover, the sample table 34 can be rotated now centering on the center of the sample table 34 with a stepping motor. It fixes towards Direction P and a bar code reader 31 can read the bar code of a sample or the calibrator one after another from an aperture 36.

[0025] The bottle 38 containing the reagent with which the two-dimensional bar code label was stuck turned the label to the periphery top outside, and is located in a line with the reagent table 37. As for the bottle 38 of a reagent, a different thing of capacity, the container of a diluent, etc. can be intermingled. The sensor which can discriminate the position in the reagent tables 37, such as a reagent and a diluent,

is prepared for the reagent table 37. Moreover, the reagent table 37 can be rotated now centering on the center of the reagent table 37 with a stepping motor. It fixes towards Direction Q and a bar code reader 31 can read the bar code of a reagent or a diluent one after another from an aperture 39. Moreover, a bar code reader can read a two-dimensional bar code, keeping a position constant because the reagent table 37 rotates.

[0026] In the bar code card holder 21 arranged between a sample table and a reagent table, the bar code card 11 is placed, and a two-dimensional bar code is read, rotating the reading direction of a bar code reader 31 with L->R or R->L. The bar code side of a container 35, the bar code card 11, and a bottle 38 is on the same periphery mostly.

[0027] Thus, by enabling a rotation of a bar code reader 31, it is one bar code reader and it is possible to read three bar codes, such as a sample, a reagent, and the bar code card 11.

[0028] Moreover, in this mechanism, both methods of making move the method and bar code to which a bar code reader 31 is moved, and reading a bar code are realizable.

[0029] In the above-mentioned example, although it is the mechanism which the sample table 34 and the reagent table 37 are circular, and rotate, even if it is the mechanism which combined not only a rotation like this example but a parallel displacement, a parallel displacement, and a rotation, it is applicable. As an example, the case where it is the conveyance line of a sample instead of the sample table is shown in drawing 4. With this composition, it has the composition of a bar code reader 51 rotating and reading the 1-dimensional bar code label of the containers 56, such as a sample and calibrator, put in order by the two-dimensional bar code label of the reagent bottle 57 in the reagent table 52, the bar code card 11 inserted in the bar code electrode holder 53, and the rack 55 which moves in the conveyance line 54 top, respectively.

[0030] Next, the flow of processing is explained with reference to drawing 3 taking the case of the calibrator. Before analysis, first, equipment makes a bar code reader 31 turn to in the reagent bar code reading direction Q, and reads the bar code of the reagent lot 5 of the content of Table 1 about all the reagents of the reagent table 37, or diluents. Here, the detailed information on four lots of the calibrator lots 3-6 is registered into a floppy disk. Next, a bar code reader 31 is suitable in the sample bar code reading direction P. All of the sample and calibrator of the sample table 34, or the bar code of control are read also here. Here, when that by which neither the calibrator nor the detailed information of control is registered into a floppy disk is discovered, it is displayed on a display that a message inserts the bar code card corresponding to this lot in the bar code card holder 21 (for example, when the calibrator lot 6 is discovered in the sample table 34, a message is sent so that the calibrator lot 6 of the content of Table 3 may carry out bar code card insertion.). And a bar code reader 31 turns to the reading position of the bar code card 11. If an operator inserts the bar code card 11 corresponding to the lot concerned and publishes the command of the calibrator or control information registration from a keyboard, a bar code reader 31 will go a bar code to reading. If reading is performed normally, the calibrator or the information on control will be registered. A sensor is attached to a card holder 21, insertion of the bar code card 11 is detected, and it may be made to publish a command instead of publishing a command automatically.

[0031] When it is the case where the wrong bar code card 11 is inserted at that time, and the bar code (when the bar code card of the calibrator lot 5 of the content of Table 2 has been inserted in the above-mentioned example) which cannot be read, a computer sends the message of warning on a display. Moreover, when neither the calibrator nor control is registered normally, it prevents from performing the calibration-curve creation and the quality control which used the calibrator of the lot, and control of the lot.

[0032] Although the automatic analyzer concerning this invention consists of the above composition, the operation is explained below. By this invention, by dedicating the calibrator and 4 sets of information on control into the two-dimensional bar code of the reagent bottle 38, when the calibrator and the lot of control change, it can respond. The information for four lots considers the calibrator and the term of validity of control, and is sufficient amount of information. Furthermore, by using the bar code card 11, when manufacture of the calibrator and control is slower than manufacture of a reagent, the bar code card 11 can be inserted in the bar code card holder 21, and information offer can be easily performed only by the work made to read into equipment. For example, while using the reagent lot 5 of the above-

mentioned example, when it is going to use the calibrator lot 6 manufactured after the reagent lot 5 was manufactured, registration work can be performed only by making the bar code card of the calibrator lot 6 of the content of Table 3 read. Moreover, it is not necessary to newly increase the bar code reader which reads the bar code card 11 by making a bar code reader 31 into working. Moreover, both methods of making move the method and bar code to which a bar code reader 31 is moved, and reading a two-dimensional bar code are realizable by considering as working.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is drawing showing the example of a bar code card.

[Drawing 2] It is the perspective diagram showing the example of a bar code card holder.

[Drawing 3] It is the outline plan of the automatic analyzer of one example of this invention.

[Drawing 4] It is the outline plan of other examples of this invention.

[Description of Notations]

11 [-- An insertion mouth, 23, 36, 39 / -- 31 A reading aperture, 51 / -- A bar code reader, 32 / -- A rotation base, 34 / -- A sample table, 37 / -- 38 A reagent table, 57 / -- A reagent bottle, 55 / -- Rack.] -- A bar code card, 21 -- A bar code card holder, 22

[Translation done.]

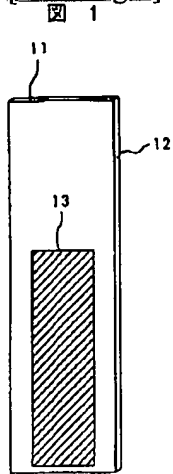
* NOTICES *

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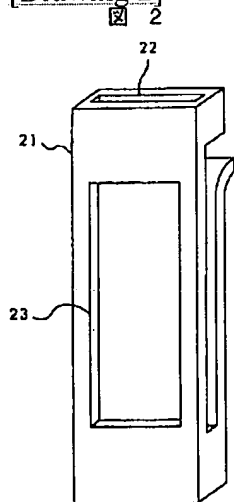
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DRAWINGS

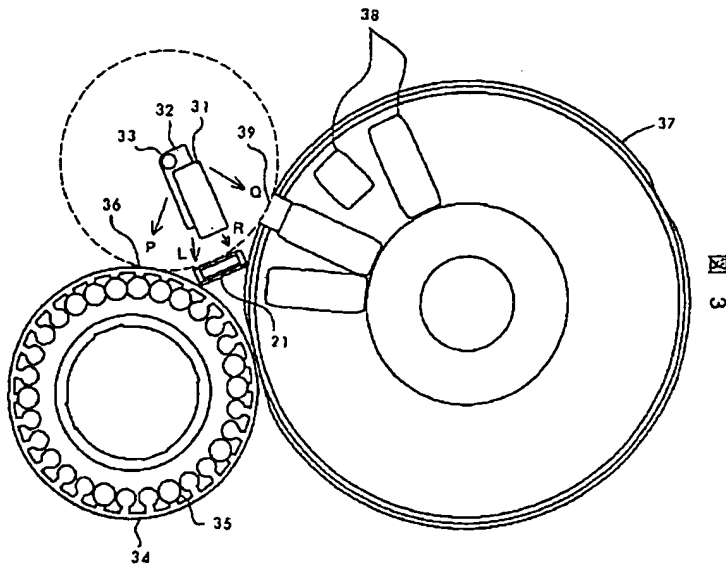
[Drawing 1]



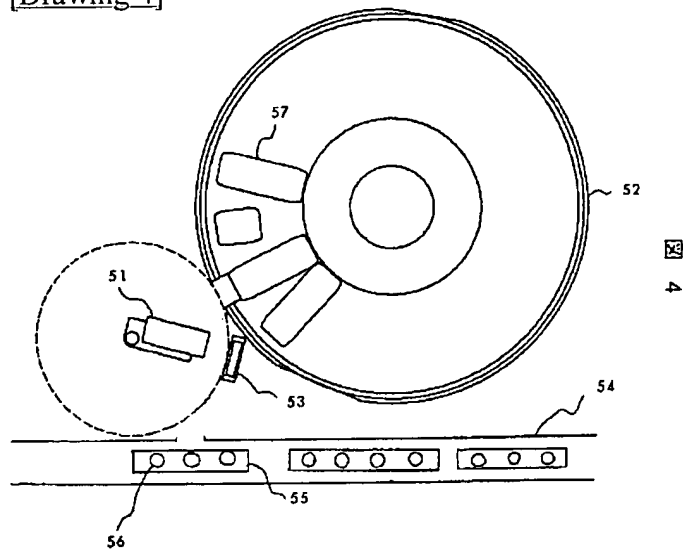
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Translation done.]

PATENT ABSTRACTS OF JAPAN

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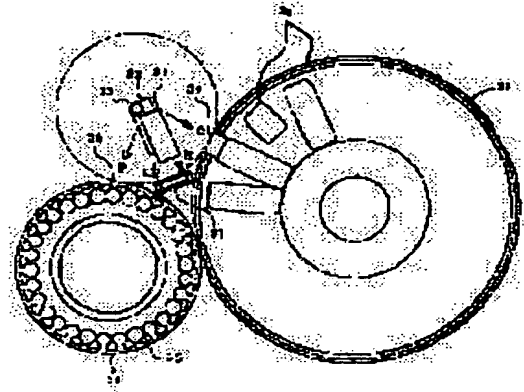
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(54) AUTOMATIC ANALYZER

(57)Abstract

PURPOSE: To provide an automatic analyzer whose registration operation is simple and whose registration is performed by simple work even when detail information about a calibrator and a control is changed every lot for the automatic analyzer which is inconvenient to register the detail information of the calibrator and the control.

CONSTITUTION: A reagent table 37 for mounting a plurality of reagent bottles 38, a sample table 34 for mounting a calibrator and a control, and a bar code reader 31 for reading a two-dimensional bar code of the reagent bottles 38 and a one-dimensional bar code of the calibrator and the control are equipped. The information thereof is stored in addition to reagent information in the two-dimensional bar code of the bottles 38.



LEGAL STATUS

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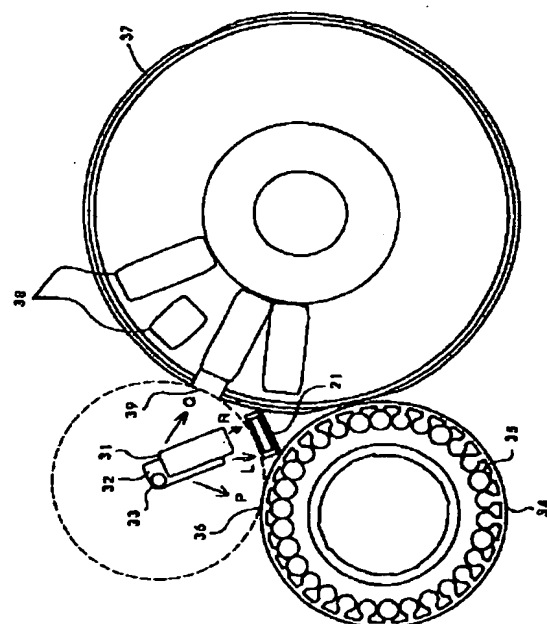
(54) 【発明の名称】 自動分析装置

(57) 【要約】

【目的】 本発明の目的は、キャリブレーションやコントロールの詳細な情報を登録することが不便であった自動分析装置に対して、登録操作の簡単な自動分析装置を提供することである。さらに、高精度の分析が求められるようになり、キャリブレーションやコントロールの詳細な情報がロット毎に変わるような場合にも簡単な作業で登録が済むような自動分析装置を提供することである。

【構成】 自動分析装置は、複数の試薬ボトル38を搭載する試薬テーブル37と、キャリブレーションやコントロールを搭載するサンプルテーブル34と、試薬ボトル38の2次元バーコードとキャリブレーションやコントロールの容器35の1次元バーコードを読むバーコードリーダ31を備える。試薬ボトル38の2次元バーコード中に試薬情報を加えて、キャリブレーションやコントロールの情報を納めてある。

図 3



【特許請求の範囲】

【請求項1】その中に収容しているキャリブレーション又はコントロールサンプルの識別コードとロット番号を1次元のバーコードとして付された容器と、キャリブレーション又はコントロールサンプルに関する情報および試薬情報を2次元のバーコードとして付された試薬ボトルと、上記容器および上記試薬ボトルのそれぞれのバーコードを読み取るバーコードリーダと、上記容器および上記試薬ボトルから読み取ったバーコード情報を対応づけて登録する記憶部とを備えたことを特徴とする自動分析装置。

【請求項2】その中に収容しているキャリブレーション又はコントロールサンプルの識別コードとロット番号を1次元のバーコードとして付された容器と、上記容器を複数配置した容器移送装置と、キャリブレーション又はコントロールサンプルに関する情報および試薬情報を2次元のバーコードとして付された試薬ボトルと、上記試薬ボトルを複数配置した試薬ボトル移送装置と、複数ロットの試薬に対応するキャリブレーション又はコントロールサンプルに関する詳細情報を2次元のバーコードとして付されたバーコードカードが挿入されるカードホルダと、読み取り方向が変えられる回転式のバーコードリーダとを備え、上記容器、上記試薬ボトル、および上記カードのバーコード面をほぼ同一円周上に配置したことを特徴とする自動分析装置。

【請求項3】請求項2記載の分析装置において、各バーコードの情報を登録する記憶部を備え、キャリブレーション又はコントロールサンプルの詳細情報が上記記憶部に未登録であるときに、上記バーコードカードを挿入することを促すメッセージを表示する表示部を備えたことを特徴とする自動分析装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】この発明はサンプル中の成分を分析する自動分析装置に関する。

【0002】

【従来の技術】自動分析装置でサンプル中の成分を分析する過程において処理しなければならない情報は、サンプルの判別、分析項目、試薬の成分、有効期限、反応時間、キャリブレーション（検量線作成用試料）、コントロール（精度管理用試料）の情報など多岐にわたる。

【0003】それらの情報を処理するために近年、1次元のバーコードを用いることが多くなってきた。特開昭63-61165号は、分析パターンの番号や有効期限、またはそれぞれのIDに関する情報が納められている1次元のバーコードを読み取り、読み取った情報を基に別の方法で装置の記憶装置にあらかじめ登録されている詳細な情報のデータベースを呼び出して処理し、分析を行うことを示している。

【0004】情報量の少ない1次元のバーコードを用いたこのような方法では、サンプルや試薬等のID情報

と、それらの詳細な情報が同時に装置に入力されない。新しい試薬を使う際には前もって情報を入力するなどして、情報を分けて登録しなければならない。これは、操作者にとって、操作を複雑化するものである。また、情報を分けて登録する場合、入力する順番や時間を管理する、または情報を入力する装置を増やす等、装置の構造やソフトウェアの開発を煩雑にするものである。このような要求に対して、高密度大容量の2次元バーコードシステムにより、サンプルや試薬などとそれぞれの情報を一括管理する方法が提唱されている（谷重喜ら、2次元バーコードシステムの開発と情報管理 日本臨床検査自動化学会誌Vol.18 No.2 1993, 谷重喜 医療分野で期待される二次元バーコード 新医療 1994年 2月号）。

【0005】一方、特開平6-12423号は、バーコードを紙面上に並べて詳細情報を記録し、それを読み取らせる方法を示している。

【0006】

【発明が解決しようとする課題】精度の高い分析が求められるようになると、キャリブレーションまたはコントロールサンプルのロット毎にそれぞれの異なる詳細な情報が必要である。この場合には、それらの情報をその度に登録しなければならないとなり、それだけ扱う情報量はさらに多くなる。

【0007】従来、これらの詳細な情報の登録するには、キーボードから手入力していた。キーボード入力はミスも出やすく、作業が煩雑である。

【0008】ここで、キャリブレーションとは、検量線作成用の試料を指し、コントロールサンプルとは、精度管理用の試料（以下、コントロールと称す）を指す。

【0009】本発明の目的は、キャリブレーションやコントロールの詳細な情報を登録することが不便であった自動分析装置に対して、登録操作の簡単な自動分析装置を提供するものである。さらに、高精度の分析が求められるようになり、キャリブレーションやコントロールの詳細な情報がロット毎に変わるような場合にも簡単な作業で登録が済むような自動分析装置を提供するものである。

【0010】

【課題を解決するための手段】本発明は、その中に収容しているキャリブレーション又はコントロールサンプルの識別コードとロット番号を1次元のバーコードとして付された容器と、キャリブレーション又はコントロールサンプルに関する情報および試薬情報を2次元のバーコードとして付された試薬ボトルと、その容器および試薬ボトルのそれぞれのバーコードを読み取るバーコードリーダと、上記容器および上記試薬ボトルから読み取ったバーコード情報を対応づけて登録する記憶部とを備えたことを特徴とする。

【0011】本発明は、また、その中に収容しているキャリブレーション又はコントロールサンプルの識別コードと

3

ロット番号を1次元のバーコードとして付された容器と、上記容器を複数配置した容器移送装置と、キャリブレーション又はコントロールサンプルに関する情報および試験情報を2次元のバーコードとして付された試験ボトルと、上記試験ボトルを複数配置した試験ボトル移送装置と、複数ロットの試験に対応するキャリブレーション又はコントロールサンプルに関する詳細情報を2次元のバーコードとして付されたバーコードカードが挿入されるカードホルダと、読み取り方向が変えられる回転式のバーコードリーダとを備え、上記容器、上記試験ボトル、および上記カードのバーコード面をほぼ同一円周上に配置したことを特徴とする。この場合、各バーコードの情報を登録する記憶部を備え、キャリブレーション又はコントロールサンプルの詳細情報が上記記憶部に未登録であるときに、バーコードカードを挿入することを促すメッセージを表示する表示部を備える。

【0012】

【作用】本発明では、キャリブレーションやコントロールの情報を試験ボトルに貼られた2次元バーコードラベルで提供することにより、特別な作業なしに装置に登録でき、さらに、試験ボトルの2次元バーコードに複数組みのキャリブレーションやコントロールの情報を納めることによりキャリブレーションやコントロールのロットが変わった場合でも情報は登録されているので新たな登録作業はし*

10 【0013】

【実施例】以下、この発明の具体的実施例について図1～図4を参照して説明する。

【0014】本発明にかかる、試験のボトルに貼る2次元のバーコードラベルには、試験であることを示すコード、試験のロット番号、試験ボトルの個々の番号、詳細な情報、キャリブレーションおよびコントロールの詳細な情報が納められている。キャリブレーションやコントロールの情報は、試験が製造された段階で最新のロットおよび3つ前までのロットについて納められている。例えば、試験ロット5のバーコードラベルには表1のような内容が納められている。

【0015】

【表1】

表 1

試験ロット5のバーコードラベル

バーコード識別	試験
ロット番号	5
ボトル番号	7
試験の詳細情報	試験1の詳細情報
キャリブレーションの詳細情報	試験ロット5を使ったときのキャリブレーションのロット3～6の詳細情報
コントロールの詳細情報	試験ロット5を使ったときのコントロールロット4～7の詳細情報

【0016】図1は本発明にかかるバーコードカードの概略図である。バーコードカード11は厚紙またはプラスチック製のカード基板12にバーコードラベル13が貼り付けられた構成となっている。あるいは、厚紙またはプラスチック製のカード11の基板自体にバーコードが印刷されている。カードの誤挿入を防ぐためにカードの両面にバーコードを印刷またはバーコードラベルを貼り付けるようにしても良い。バーコードカード11のバーコードにはキャリブレーションまたはコントロールのロ

ット番号、および、キャリブレーションまたはコントロールが製造された段階で最新のロットの試験と3つ前までのロットに対してのキャリブレーションまたはコントロールの詳細な情報が納められている。例えば、キャリブレーションロット5のバーコードラベルには表2のような内容が納められている。また、キャリブレーションロット6のバーコードラベルには表3のような内容が納められている。

【0017】

【表2】

表 2

キャリブレタロット5のバーコードカード

バーコード識別	キャリブレタ
ロット番号	5
ボトル番号	8
試薬の詳細情報	キャリブレタロット5の詳細情報
詳細情報	試薬ロット2～5を使ったときのキャリブレタのそれぞれの詳細情報

【0018】

10【表3】

表 3

キャリブレタロット6のバーコードカード

バーコード識別	キャリブレタ
ロット番号	6
ボトル番号	10
試薬の詳細情報	キャリブレタロット6の詳細情報
詳細情報	試薬ロット3～6を使ったときのキャリブレタのそれぞれの詳細情報

【0019】この例では、試薬ロット5が製造された時点では、キャリブレタはロット5までしか製造されていないものとする。そして、試薬ロット5が製造された後に、キャリブレタロット6が製造されたものとする。

【0020】図2はバーコードカード11を読み取るためのバーコードカードホルダの図である。バーコードカードホルダ21は挿入口22よりバーコードカードを挿入し、窓23より読み取ることができる構造になっている。

【0021】次に、本発明にかかる自動分析装置の構成を説明する。図3は本発明を用いた自動分析装置の平面図である。バーコードリーダ31は回転台32に固定されて、軸33を中心にステッピングモータにより回転移動することができる。装置には種々のコマンドや情報を入力できるキーボード、種々のメッセージや情報を表示するディスプレイが備わっている。キーボードの代わりにタッチパネルを用いた入力装置を装備してもよい。また、装置のシステムソフトを供給し、種々の情報を記憶するフロッピーディスクを扱うフロッピーディスクドライブが備わっている。

【0022】サンプルテーブル34には、サンプル容器35が円周上に並んでいる。容器35にはサンプル、キャリブレタ、コントロールが入っている。容器35は、試験管またはサンプルカップ、微量カップ、キャリブレタやコントロールは専用の容器である。サンプルテーブル34には、サンプルやキャリブレタ等のサンプルテーブル34内の位置を識別できるセンサが用意されている。

【0023】キャリブレタやコントロールの容器には1次元のバーコードラベルが貼られていて、この1次元

20 バーコードにはキャリブレタもしくはコントロールであることを識別するコード、それぞれのロット番号などが納められていて、それぞれの詳細な情報は入っていない。また、サンプルの試験管にはサンプルであることを識別するコード、およびサンプル番号やその他の情報が入っている。そして、バーコードが貼られた容器35はラベルを円周上外側に向けて並んでいる。

【0024】また、サンプルテーブル34はステッピングモータによりサンプルテーブル34の中心を軸に回転移動できるようになっている。バーコードリーダ31は、方向Pに向けて固定しておき、窓36から次々にサンプルやキャリブレタのバーコードを読むことができる。

【0025】試薬テーブル37には、2次元のバーコードラベルが貼られた試薬の入ったボトル38が、ラベルを円周上外側に向けて並んでいる。試薬のボトル38は容量の異なるものや希釈液の容器なども混在できる。試薬テーブル37には、試薬や希釈液等の試薬テーブル37内の位置を識別できるセンサが用意されている。また、試薬テーブル37はステッピングモータにより試薬テーブル37の中心を軸に回転移動できるようになっている。バーコードリーダ31は、方向Qに向けて固定しておき、窓39から試薬や希釈液のバーコードを次々に読むことができる。また、試薬テーブル37が回転することで、バーコードリーダは位置を一定に保ったまま2次元バーコードを読み取ることができる。

【0026】サンプルテーブルと試薬テーブルの間に配置したバーコードカードホルダ21には、バーコードカード11を置き、バーコードリーダ31の読み取り方向をL→RまたはR→Lと回転させながら2次元バーコードを読み取る。容器35、バーコードカード11、ボト

ル38のバーコード面は、ほぼ同一円周上にある。

【0027】このようにバーコードリーダ31を回転移動可能とすることにより、1つのバーコードリーダで、サンプル、試薬およびバーコードカード11といった3ヶ所のバーコードを読むことが可能である。

【0028】また、この機構において、バーコードリーダ31を移動させる方法とバーコードを移動させてバーコードを読む方法の両方が実現できる。

【0029】上記実施例ではサンプルテーブル34や試薬テーブル37が円形で回転するような機構であるが、この実施例のような回転移動のみならず、平行移動や平行移動と回転移動を組み合わせたような機構であっても適用できる。一例として、サンプルテーブルの代わりにサンプルの搬送ラインとなっている場合を図4に示す。この構成では、試薬テーブル52内の試薬ボトル57の2次元バーコードラベルと、バーコードホルダ53に挿入されたバーコードカード11と、搬送ライン54上を移動するラック55に並べられたサンプルやキャリブレータなどの容器56の1次元バーコードラベルをバーコードリーダ51が回転移動してそれぞれ読み込む構成になっている。

【0030】次に、処理の流れをキャリブレータを例にとり図3を参照して説明する。装置は、分析の前にまず、バーコードリーダ31を試薬バーコード読み取り方向Qに向かせ、試薬テーブル37の試薬や希釈液のすべについて、例えば表1の内容の試薬ロット5のバーコードを読み込む。ここで、キャリブレータロット3～6の4つのロットの詳細な情報がフロッピーディスクに登録される。次に、サンプルバーコード読み取り方向Pにバーコードリーダ31が向く。ここでもサンプルテーブル34のサンプルおよびキャリブレータやコントロールのバーコードをすべて読み取る。ここで、キャリブレータやコントロールの詳細な情報がフロッピーディスクに登録されていないものが発見された場合、このロットに対応するバーコードカードをバーコードカードホルダ21に挿入するようにメッセージをディスプレイ上に表示する（例えばキャリブレータロット6がサンプルテーブル34内に発見された場合、表3の内容のキャリブレータロット6のバーコードカード挿入するようにメッセージを出す。）。そして、バーコードリーダ31はバーコードカード11の読み取り位置に向く。操作者が、当該ロットに対応するバーコードカード11を挿入し、キャリブレータまたはコントロール情報登録のコマンドをキーボードより発行すると、バーコードリーダ31がバーコードを読みに行く。読み取りが正常に行われると、キャリブレータまたはコントロールの情報が登録される。コマンドを発行する代わりにカードホルダ21にセンサを付けてバーコードカード11の挿入を検知し自動的にコマンドを発行するようにしても良い。

【0031】その際、間違ったバーコードカード11が

挿入された場合（上記の例では表2の内容のキャリブレータロット5のバーコードカードを挿入してしまった時）や読み込み不可能なバーコードであった場合、コンピュータはディスプレイ上に警告のメッセージを出す。また、正常にキャリブレータや、コントロールが登録されなかった場合は、そのロットのキャリブレータやそのロットのコントロールを用いた検量線作成や精度管理を行うことができないようにする。

【0032】この発明にかかる自動分析装置は以上のような構成からなるが、次にその作用について説明する。本発明では、キャリブレータやコントロールの4組の情報を試薬ボトル38の2次元バーコードの中に納めることで、キャリブレータやコントロールのロットが変わった場合にも対応できる。4ロット分の情報は、キャリブレータやコントロールの有効期限を考慮して、十分な情報量である。さらに、バーコードカード11を用いることで、試薬の製造よりもキャリブレータやコントロールの製造が遅い場合にも、バーコードカード11をバーコードカードホルダ21に挿入し、装置に読み込ませるだけの作業で情報提供を簡単に行うことができる。例えば、上記例の試薬ロット5を使用している時、試薬ロット5が製造された後に製造されたキャリブレータロット6を使おうとする場合には、表3の内容のキャリブレータロット6のバーコードカードを読み込ませるだけで登録作業ができる。また、バーコードリーダ31を可動式にすることにより、バーコードカード11を読み取るバーコードリーダを新たに増やさなくても良い。また、可動式とすることにより、バーコードリーダ31を移動させる方法とバーコードを移動させて2次元のバーコードを読む方法の両方が実現できる。

【0033】

【発明の効果】本発明により、キャリブレータやコントロールの詳細な情報を入力することが不便であった自動分析装置に対して、登録操作の簡単な自動分析装置を提供できる。さらに、高精度の分析が求められるようになり、キャリブレータやコントロールの詳細な情報がロット毎に変わるような場合にも簡単な作業で登録が済むような自動分析装置を提供できる。

【0034】また、これらの情報提供にあたって、入力方法を多様化して装置を複雑化することもない。

【0035】本発明によれば、分析項目の反応に使用する試薬に関する情報と、その試薬に関連するキャリブレータおよび／又はコントロールサンプルの情報を、人手によって入力することなく記憶部に登録することができ。また、容器のバーコードとカードに付されたバーコードとの両方の読み取りを可能としたので、バーコードが付された試薬に関連するコントロール試料の情報又はキャリブレータの情報をカードから読み取って、それらの情報を関連づけて登録できる。さらに、バーコードリーダを回転式とし、容器とボトルとカードの配置を工夫

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【図4】本発明の他の実施例の概略平面図である。

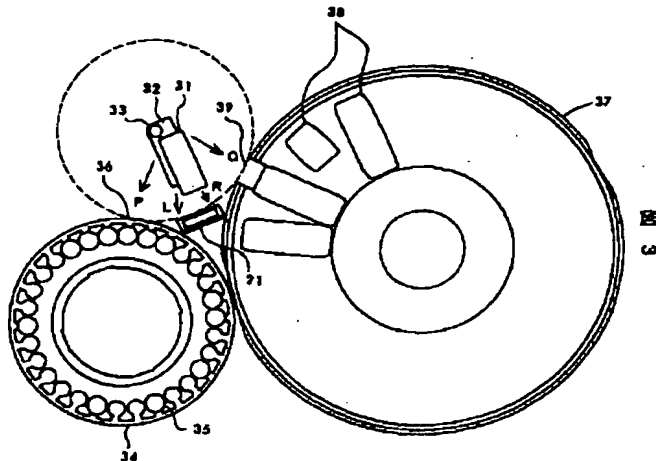
【符号の説明】

11…バーコードカード、21…バーコードカードホルダ、22…挿入口、23、36、39…読み取り窓、31、51…バーコードリーダ、32…回転台、34…サンプルテーブル、37…試薬テーブル、38、57…試薬ボトル、55…ラック。

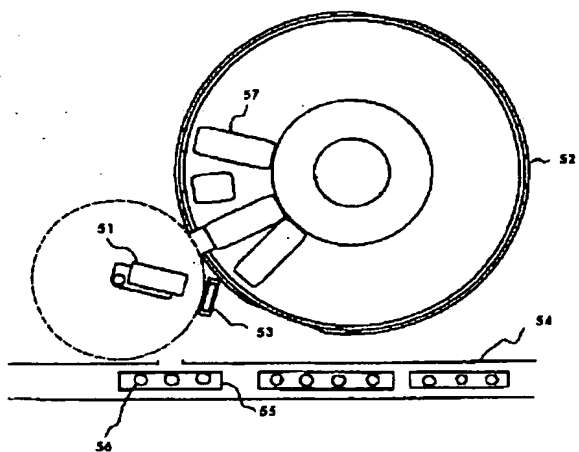
1, 51…バーコードリーダ、32…回転台、34…サンプルテーブル、37…試薬テーブル、38, 57…試薬ボトル、55…ラック。

薬ボトル、55…ラック。

【图 3】



【図 4】



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